DOCUMENT RESUME

ED 257 020 CG 018 242

AUTHOR McLaughlin, Robert J.; And Others
TITLE Age-Graded Prevalence of Alcohol Use during Adolescence.
PUB DATE Aug 84
NOTE 34p.; Paper presented at the Annual Convention of the American Psychological Association (92nd, Toronto, Ontario, Canada, August 24-28, 1984). Research was supported by the Abercrombie Foundation, Houston, TX.
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Adolescents; *Age Differences; Alcoholic Beverages; Cohort Analysis; *Drinking; Secondary Education; *Sex Differences

ABSTRACT

Despite the potential importance of delineating the development of alcohol use over the adolescent years, detailed investigations of incremental increases in alcohol use in adolescence are rare. Age- and gender-related differences in frequency, quantity, patterns, and consequences of alcohol use were examined among 1,260 male and 1,338 female adolescents at 6-month age intervals between 11.5 and 17.5 years. The results indicated age-related increases in alcohol use for both sexes. The greatest shift toward increased use occurred between the ages of 14 and 15 years. By age 15, the percentage of non-alcohol users had dropped to 20 percent from 63 percent at age 12, and the percentage of frequent users of substantial quantities of alcohol had risen from 1 percent at age 12 to 19 percent at age 17. Sex differences occurred only for the pattern of frequent use or use of substantial quantities, with greater use reported by older males. Greater use was reported in a 1982 cohort than in a 1981 cohort. The findings suggest that primary prevention efforts should occur before age 13, with secondary prevention efforts in the middle to late teenage years. (NRB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED257020

Age-Graded Prevalence of Alcohol Use During Adolescence

Robert J. McLaughlin, Ph.D., Paul E. Baer, Ph.D.,
Alex D. Pokorny, M.D., Mary A. Burnside, Ph.D.
Allison C. Fairlie, B.S.
Baylor College of Medicine
Department of Psychiatry

CG 018242

ADOLESCENT ALCOHOL USE

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Robert J. McLaughlin
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Acknowledgments

This research was supported by the Abercrombie Foundation, Houston, Texas. Portions of these data were presented at the 92nd Annual Convention of the American Psychological Association in Toronto, Canada in August, 1984.

Abstract

Age- and gender-related differences in frequency, quantity, pattern of alcohol use, and consequences of use were examined among 1260 male and 1338 female adolescents at six-month age intervals between 11.5 and 17.5 years. Age-related increases were found for both boys and girls in prevalence of alcohol use over the course of adolescence. The greatest shift toward increased usage occurred between the ages of 14 and 15 years. For all students, by age 15, the percentage of non-users had dropped to 20% from 63% at age 12, and the percentage of a pattern of frequent usage of substantial quantities, of alcohol had risen from 1% at age 12 to 19% at age 17. Sex differences occurred only for the patterns of frequent usage or use of substantial quantities, with the greater usage reported by males at the older ages. Greater use was reported in a 1982 cohort than in a 1981 cohort.

Age-graded Prevalence of Alcohol Use During Adolescence

Prevalence rates of alcohol use among older adolescents are as high as 90% (Johnston, Bachman, & O'Malley, 1981; Smart, 1980). Despite the potential importance of delineating the development of alcohol use over the adolescent years, detailed investigations of the incremental increases in alcohol use over the adolescent years are not numerous. Methodological problems inherent in such investigations could easily discourage research in this area. These problems include questions about: the age range, the length and number of age intervals, subject's gender, measurement of alcohol use, classification of alcohol use, consequences of alcohol use, sociodemographic characteristics, cohorts, and statistical testing of differences in alcohol use between age levels. We found four studies (Downs & Robertson, 1982; Goodstadt, Chan, & Sheppard, 1982; Rachal et al, 1980; Stacey, & Elvey, 1982) that best represent the current status of information on this important topic.

Stacey and Elvey (1982) reported alcohol use by 14-17 year old male and female adolescents in New Zealand in one-year intervals. The alcohol use measure was an alcohol consumption

estimate consisting of a log transformation of milliliters of ETOH per day, based on the amount of alcohol used on the last drinking occasion and adjusted for the time period in days during which the last two drinking occasions occurred. The log consumption estimate of the alcohol users increased linearly with age, more steeply for boys than for girls. The report did not include classification of alcohol use, nor evaluation of the consequences of alcohol use, and relied on one cohort. It was the only study in which the significance of age-graded changes in alcohol use was tested.

Between 1970 and 1979, Goodstadt, Chan and Sheppard (1982) conducted six alcohol use surveys of Canadian students in two-year increments of age between 12 and 18 years. For all cohorts there was an increase in a frequency measure of usage with age. Low frequency of alcohol use decreased with age while more frequent use increased with age. Differences between cohorts in frequency of use according to age appeared to be related to changes in the format of the questions used for the different cohorts. The time period sampled for frequency of drinking also differed among cohorts. Data for male and female students were combined, and alcohol use consequences were not explored.

Downs and Robertson (1982) reported two studies of age-related alcohol use during adolescence. In the first, which was conducted in 1975 - 1976, 14 to 18-year-old male and female students in one-year age increments were administered a questionnaire. Students were classified as nondrinkers, occasional drinkers, occasional heavy drinkers, or consistent heavy drinkers, using a combination of frequency and quantity of alcohol use measures. The percentage of nondrinkers decreased from 33% at age 14 to 21% at age 18, while the percentage of consistent heavy drinkers increased from 5% to 16% over the same ages. The other categories remained relatively stable. Statistical assessment of the results indicated that the relationship between age and drinking category was weak. Further, no significant differences were found between males and females for the proportions of students classified as drinkers. Similar results were reported for a 1980 interview study of a second cohort of adolescents aged 13 to 17 years, although the percentage of non-drinkers in the second study was smaller than at equivalent ages in the first study. The results from the two cohorts are difficult to compare, due to differences in methods of collecting the data, as well as differences in the measures of alcohol consumption. It is worth noting that after these authors

adjusted the measure of alcohol use for body weight, they found similar results. Findings in these studies indicate substantial disagreement with other studies both for the magnitude of the relationship between alcohol use and age, and for the failure to find gender differences.

Relying on a combination of frequency and quantity measures, Rachal, et al (1980) classified boys and girls aged 13-18 in one-year age intervals, into six usage categories, abstainer, infrequent, light, moderate, moderate/heavier and heavier. The age samples were collected at two different time periods, 1974 for ages 13-18, and 1978, 15-18. Results for 15-18 year olds were similar for 1974 and 1978. Male students used alcohol more than females. Year by year age percentages were reported, without statistical tests of the significance of changes. The largest age-related increase occurred between tenth and eleventh grade in the category of weekly heavy drinkers. Relatively limited changes were found after age 15.

Although these surveys show that alcohol use increases with chronological age during adolescence, the data available in the studies we reviewed suggest that a more detailed demonstration would be useful. In the present study we expand the age range to cover 11.5 to 17.5 years of age in order to obtain a base line of

usage at a preadolescent level. To demonstrate age-related changes in detail, we report usage data for boys and girls separately in 6-month age intervals, and test for the significance of differences between the intervals. Four alcohol use measures were employed: estimated average quantity per occasion of use, frequency of use during the preceding month, an alcohol use classification scheme combining both the frequency and quantity measures, and social consequences of alcohol use. Two cohorts were surveyed.

Method

Subjects

The subjects were 2,598 students in seventh and eighth grade science classes and tenth and eleventh grade health classes from a predominately white, middle-class community on the periphery of Houston, Texas. These students were enrolled in six different schools, three intermediate and three secondary. The number of classes per school ranged from 11 to 28, with 66 classes providing intermediate school students, and 44 classes providing secondary school students. No remedial classes were included. Five of the schools, three intermediate and two secondary, were in one school district, and one secondary school was in an adjacent district. Of the 11% (N = 292) of the

students who described themselves as members of an ethnic minority, 59 were Black, 115 Hispanic, 64 Asian, and 54 other. Each of these groups accounted for 2% to 5% of the entire sample. The education of the head of the household was as follows: 3% had not completed high school, 23% completed high school, 41% completed college, and 33% completed one or more years of postbaccalaureate study. The occupation of the head of the household was 1% unemployed, 19% clerical and administrative workers, 25% blue collar, 48% professional and executive, and 7% owners of their own businesses. The majority of the students, 69%, were living with both natural parents, 10% with the mother only, 4% with the father only, and 17% with a parent and a step-parent. The relationship between family intactness and adolescent alcohol use is explored in a separate report.

Procedures

The students were recruited during four successive semesters, spring and fall of 1981 and spring and fall of 1982. Each wave of students completed a questionnaire at the beginning and end of the first semester (Times 1 and 2; grades 7 and 10), and 12 months later (Time 3; grades 8 and 11). Data collected 24 months later (Time 4) were not used here. A few days before data collection, the students were asked to participate in a survey

about adolescent attitudes and behavior, including alcohol and drug use. The students were informed that a federally-issued Certificate of Confidentiality guaranteed that their responses to the questionnaire would remain confidential. The average rate of refusal to participate was 7.3% per class. In only one high school class did as many as five students (14.7%) not return signed parental permission slips.

Data were collected on two or three successive class days, and make-up days were arranged for students who had been absent on those days. The questionnaire consisted of 200 multiple choice items which included demographic and family characteristics, substance use, attitudes, deviant behavior, academic and social functioning, peer relations, and personality traits. Half the students subsequently participated in a semester-long drug and alcohol use prevention program following Time 1 testing, and Time 3 data from these students were excluded from this study. The remainder served as experimental controls for the prevention program and either Time 1 or Time 3 data were used, as needed for different age levels.

In this paper we report an analyses of questionnaire data from all four semesters assessing the relationship of self-reported alcohol use to age and sex. The data from the 1981 Time 1 wave

are also contrasted with the data from the 1982 semesters to explore for cohort effects.

Measures

The following three multiple choice Likert-type items were used as dependent measures of frequency of alcohol use, quantity consumed per occasion of use, and troublesome consequences of alcohol use:

On about how many different occasions have you had any beer, wine, or liquor to drink in the past month?

1. I haven't had anything to drink in the past month.
2. Once or twice.
3. Three to five times.
4. Six to twenty times.
5. More than twenty times.

When you are drinking, how much do you usually drink on any one occasion?

1. Nothing - I never drink.
2. Less than one beer, glass of wine, or drink of liquor.
3. One or two beers, glasses of wine, or drinks of liquor.

4. Three to five beers, or glasses of wine, or drinks of liquor.
5. At least six beers, or glasses of wine, or drinks of liquor.

How often have you gotten into trouble with either your family, friends, or a date because of your drinking during the past year?

1. Not at all in the past year.
2. Once.
3. Two or three times.
4. Four or five times.
5. Six or more times.

Analyses of data obtained for these items used values of one to five, parallel to the Likert scale points. Supplementary analyses were conducted using the frequency and quantity scales underlying the Likert scales, with virtually identical results.

The students were classified into seven alcohol-use categories based on their responses to the quantity and frequency items according to the schema in Table 1, which shows the frequency and quantity of alcohol consumption that characterizes

[Insert Table 1 about here]

characterizes each of the seven categories. For subsequent

analyses, students in Category B were assigned to either Category C or E, depending on quantity of use, on the assumption that the report of no alcohol use during the preceding month was classifiable as infrequent usage. The report of alcohol use for "A'" students, who constituted 6.5% of the sample, seemed confused or unreliable, since the responses are contradictory. Students in this category were excluded from statistical analysis.

Results

Separate analyses of variance were used to examine age level and sex differences in both the quantity of alcohol consumed per occasion, and the number of instances of alcohol use during the month prior to the survey. The Duncan Multiple Range Test with alpha set at 0.05 was used to test for the significance of differences in use between contiguous age-level groups, at six-month intervals.

Measures of alcohol use. Figure 1 illustrates means and standard deviations of quantity of alcohol consumed per

[Insert Figure 1 about here]

occasion of use and frequency of use in the previous month for male and female students at half-year age intervals, from 11.5 to 17.5 years. The figure shows a gradual increase in quantity

consumed by both sexes with increasing age. The main effect of age for boys and girls combined was significant, $F(12, 2569) = 87.3$, $p < .001$. Boys reported more alcohol use than girls, $F(1, 2569) = 29.7$, $p < .001$, and there was an age by sex interaction, $F(12, 2569) = 2.1$, $p < .05$. Duncan range followup tests for sex differences showed that males used significantly greater quantities of alcohol at age levels 14.5, 15.5, 16, 17, and 17.5.

A gradual increase in frequency of alcohol use was evident for increasing age. The ANOVA confirmed both an effect of age, $F(12, 2568) = 33.9$, $p < .001$, and of sex, $F(1, 2568) = 17.6$, $p < .001$. There was no interaction between age and sex. Male and female groups were combined for follow-up tests of the main effect of age for each age level. Table 2 gives means for the

[Insert Table 2 about here]

quantity and frequency measures for frequency measures for the male and female groups combined, and shows the significances of age level differences, using the Duncan Range test. All differences are in the direction of older students reporting greater alcohol consumption than younger students in terms of quantity and frequency of use. Significant differences were found between two pairs of adjacent six-month age levels for

quantity, and one pair for frequency. The 17-year olds reported significantly greater quantity of alcohol consumed than the 16.5-year olds, and students aged 14 reported less quantity used than students aged 14.5 years. For the frequency measure of alcohol use, students aged 12.5 reported significantly less frequent use than students aged 13.0. With comparisons at one-year intervals a number of additional significant findings emerged. For quantity of use, significant differences were found between one-year age levels 12 and 13, 12.5 and 13.5, 13.5 and 14.5, 14 and 15, 16 and 17, and 16.5 and 17.5. For frequency of use significant differences were found for ages 12.5 and 13.5, 13.5 and 14.5, and 14 and 15.

To supplement these data, Table 3 shows that the percentages

[Insert Table 3 about here]

of male and female students reporting troublesome social consequences of alcohol use increased over one-year age intervals. At age 12 the percentage was about 5, rising to over 34% of the student population at age 17.

Categories of alcohol use. The alcohol use of each student was categorized by crosstabulating responses to the frequency and quantity measures, as described in Table 1. The percentage of students in each alcohol use category within each one-year age

range is illustrated in Figure 2 for males and for females, separately. The percentages of nonusers of alcohol, A,

[Insert Figure 2 about here]

decreased at each successive age level but leveled off for males at ages 15 to 17. Infrequent/low-quantity use, Category C, showed a slight decrease for males from 36% at age 12 to 27% at age 17. The percentages of females in Category C increased from 29% at age 11 to 45% at age 17. High-frequency/low-quantity alcohol use, Category D, remained between 2% and 5% at all age levels for both males and females. Category E, infrequent/high-quantity usage, showed a dramatic increase, from 3% to 32% for males, and from 1% to 23% for females. Similarly, for Category F, frequent/high-quantity usage, the percentage rose from 1% to 22% for males, and from 1% to 14% for females.

Chi-square analyses were used to test the percentages of students in all categories across one-year and two-year age intervals, separately for males and females. For the two youngest age levels of females, the cell sizes were too small for calculation of $\underline{X}^2$s. For the one-year interval analyses, significant $\underline{X}^2$s were obtained for the ages 14 and 15 for females, $\underline{X}^2(5) = 17.7$, $\underline{p} < .01$, and males, $\underline{X}^2(5) = 30.3$, $\underline{p} < .001$. For the two-year interval analyses, significant $\underline{X}^2$'s were found for

males at ages 12 and 14, $\underline{X}^2(5) = 20.5$; 13 and 15, $\underline{X}^2(5) = 77.2$; and 14 and 16, $\underline{X}^2(5) = 54.0$, all $\underline{p} < .001$. For females, significance was obtained for ages 13 and 15, $\underline{X}^2(5) = 98.0$, and ages 14 and 16, $\underline{X}^2(5) = 24.4$, all $\underline{p} < .001$. At each age level male and female percentages in the categories were tested. Significance was found for ages 16, $\underline{X}^2(5) = 17.6$, $\underline{p} < .01$, and 17, $\underline{X}^2(5) = 11.2$, $\underline{p} < 05$.

Cohort differences. A 2x2x3 ANOVA was computed for males and females from the Time 1 cohorts tested in 1981 and 1982, and for three age levels, 12 to 13, 14 to 15, and 16 to 17. The students were combined into three age levels to assure adequate cell sizes.

For quantity of alcohol consumed a significant cohort effect was found, with 1982 students reporting larger quantities of use than 1981 students, $\underline{F}(1, 2446) = 27.4$, $\underline{p} < .001$. A significant three-way interaction of age, sex, and year, $\underline{F}(2, 2446) = 3.2$, $\underline{p} < .05$, was followed up with $\underline{t}$-tests comparing means for the two cohorts of males and females separately at each of the three age levels. For 12 to 13 year olds, both males and females demonstrated a cohort effect, $\underline{t}(604.4) = 3.7$, $\underline{p} < .001$, $\underline{t}(561.9) = 3.3$, $\underline{p} < .01$, respectively, with greater quantities of alcohol used in 1982 than in 1981. No

cohort effect was demonstrated for the 14 to 15 year age level, nor for the 16 to 17 year-old males. The 16 to 17 year-old females in the 1982 cohort used more alcohol than did their 1981 counterparts, $t(248) = 2.9$, $p < .01$.

A similar 2x2x3 ANOVA on frequency of use in the previous month yielded a significant interaction of cohort and age, $F(2, 2445) = 6.0$, $p < .001$, in which the middle age group reported less frequent alcohol use in 1982 than in 1981, in contrast to the more frequent use reported by the youngest and oldest groups in 1982 than in 1981.

Discussion

Consistent with earlier reports of age-related adolescent alcohol use (Goodstadt, Chan, & Sheppard, 1982; Rachal, et al, 1980; Stacey & Elvey, 1982), we found that both frequency and quantity of alcohol use increased with age over the course of adolescence. Substantial increases in use were evident at 6-month age intervals, and occurred as early as 12.5 years, with no plateau until age 16. The greatest increase in use appeared at 14 to 15 years, which coincides with the transition from junior high to high school.

An analysis of patterns of alcohol use showed that nearly all 12-year olds were either nonusers, or

infrequent/low-quantity users who probably use alcohol for ceremonial purposes or in the context of family gatherings. This pattern of low-level use made up a relatively consistent proportion (30% to 40%) of students over the course of the adolescent years, and is clearly less related to age than are other patterns of alcohol use. The incidence of users increased rapidly until age 15. Most adolescents who use alcohol have begun by age 15, with relatively few beginning at ages 16 and 17. After age 13, there was an increase in high-volume usage, both frequent and infrequent, with dramatic increases after age 14. Frequent/low-volume use, which most closely resembles controlled social usage by adults, was a rare pattern of drinking for adolescents at any age. The percentages of frequent/high-volume users seem alarmingly high, reaching 20% for males and 13% for females by age 16. These percentages are similar to those reported by Downs and Robertson (1982). Alcohol use at this level consists of at least three "drinks" per occasion, with at least six occasions in the preceding month. (Table 1)

Increases in troublesome social consequences of alcohol use paralleled the increases in the two categories of high volume use. Further support that the age-related increases in the several measures of alcohol use describe a relatively stable

phenomenon is attested by the similarity of results for both sexes, and for different levels of parental education, and for two cohorts.

Unlike Downs and Robertson (1982) we found that males reported greater alcohol use than females. Girls showed more infrequent/low-volume use than boys, and boys more high-volume use than girls. Boys at the older ages, 15 to 17, showed a somewhat different alcohol use pattern than girls did, in that the girls were more often classified in the infrequent/low-volume category.

Our cohort analysis of alcohol use found little difference in age-related use from 1981 to 1982. Similar age-related increases in alcohol use were obtained for both years. If there was any change in usage, it was in the direction of greater use in 1982. Adolescents may be starting alcohol use a little earlier, and at older ages they may be using more alcohol in 1982 than in 1981.

The current report makes no attempt to define "problem drinking" as an index to describe alcohol usage. We felt that the same definition of "problem drinking" could not apply for all the age levels of adolescence that we studied. The measures of frequency, quantity, consequences, and classification of alcohol

use appeared adequate for documenting the levels and patterns of alcohol involvement throughout the adolescent period. Different measures yielded somewhat different results. For example, the measure of quantity of use produced significant results more often than did the measure of frequency of use. The classification index permitted evaluation of nonuse. This index also suggested that age was related to patterns of use, and dramatized the prevalence of severe usage.

Age-related increases in alcohol use during adolescence imply that there could be two types of intervention. The major increase in incidence after age 13 suggests that primary prevention efforts should occur before this age. The rapid rise in patterns of frequent/high-volume use after age 14 suggests that attempts at secondary prevention of alcohol use, or prevention of abusive patterns, should occur in the middle to later teenage years.

A sizable minority of older adolescents, 20% of the males and 15% of the females at age 16, reported patterns of frequent/high-volume use that may approximate alcoholic patterns of adult usage. It is reasonable to speculate that such adolescents are at risk for alcohol-related problems in adulthood. Longitudinal studies should be conducted which can

determine whether such students are, in fact, at increased risk. Donovan, Jessor, and Jessor (1983) reported that after seven years males who had been classified in high school as problem drinkers and those classified as nonproblem drinkers, did not differ significantly in alcohol use. It should be noted, however, that the "nonproblem drinkers" did have some problems due to alcohol use. When minimal drinkers and nondrinkers were compared to the high school problem drinkers seven years later, the problem drinkers reported more alcohol-related problems. The adolescent years are not too early to locate individuals with a greater potential for problematic alcohol involvement later in life.

References

Donovan, J.E., Jessor, R., & Jessor, L. (1983). Problem drinking in adolescence and young adulthood: A follow-up study. Journal of Studies on Alcohol, 44, 109-137.

Downs, W.R. & Robertson, J.F. (1982). Adolescent alcohol consumption by age and sex of respondent. Journal of Studies on Alcohol, 43, 1027-1032.

Goodstadt, M.S., Chan, G.C., & Sheppard, M.A. (1982). Developmental and generational trends in alcohol, cannabis and tobacco use - a ten year cohort analysis. Drug and Alcohol Dependence, 10, 303-320.

Johnston, L.D., Bachman, J.G., & O'Malley, P.M. (1981). Highlights from student drug use in American 1975 - 1980. Rockville, Maryland: National Institute on Drug Abuse.

Rachal, J.V., Guess, L.L., Hubbard, R.L. Maisto, S.A., Cavanaugh, E.R., Wadell, R., & Benrud, C.H. (1980). The extent and nature of adolescent alcohol and drug use: The 1974 and 1978 national sample studies. Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.

Smart, R.G. (1980). Some recent studies of teenage alcoholism and problem drinking. Phenomenology and Treatment of Alcoholism.

Stacey, B.G. & Elvy, G.A. (1982). Attitudes, age and sex as correlates and predictors of alcohol consumption among 14- to 17-year-olds in New Zealand. Addictive Behaviors, 7, 333-345.

Figure Captions

Figure 1. Means and standard deviations of quantity of alcohol consumed per occasion and frequency of alcohol use in past month for male and female students at half-year age intervals.

Figure 2. Percentage of male and female students in each category of alcohol use at one-year age intervals.

Table 1
Categories of Alcohol Use Based on
Reported Frequency of Consumption and
Quantity Consumed on Each Occasion

Number of Alcoholic Drinks per Occasion	Number of Occasions of Alcohol use in Past Month				
	0	1 or 2	3 to 5	6 to 20	More than 20
0	A Nonusers	A' Used last month, but non-use for quantity			
Less than 1	B Any volume but not last month	C Infrequent/ low-volume		D Frequent/ low-volume	
1 or 2					
3 to 5		E Infrequent/ high-volume		F Frequent/ high-volume	
At least 6					

Table 2
Means of Quantity and Frequency Measures
of Alcohol Use for Males and Females Combined
at One-half Year Age Levels

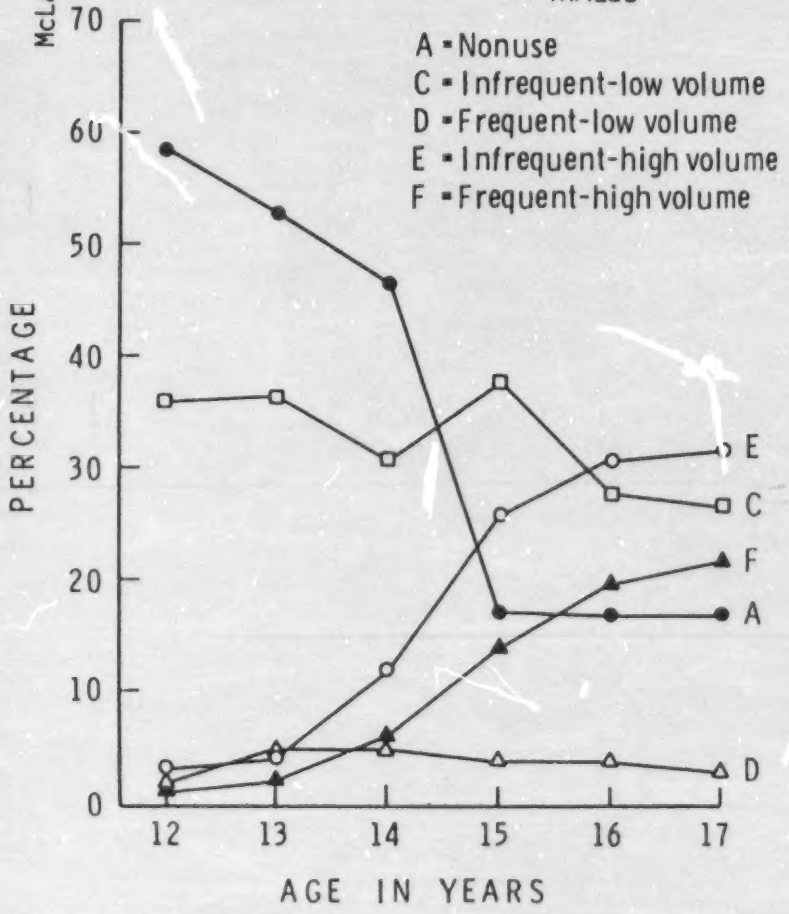
	Age Levels												
Measure	11.5	12	12.5	13	13.5	14	14.5	15	15.5	16	16.5	17	17.5
N	90 a	440 a	416 ab	154 bc	182 c	84 c	72 d	241 de	364 de	183 e	112 de	161 f	88 f
Quantity	1.41 a	1.44 a	1.50 a	1.73 b	1.97 b	1.93 bc	2.65 cd	2.75 de	2.90 de	2.98 ef	2.87 ef	3.27 f	3.27 f
Frequency	1.39	1.51	1.51	1.76	1.77	1.87	2.10	2.22	2.24	2.35	2.44	2.56	2.45

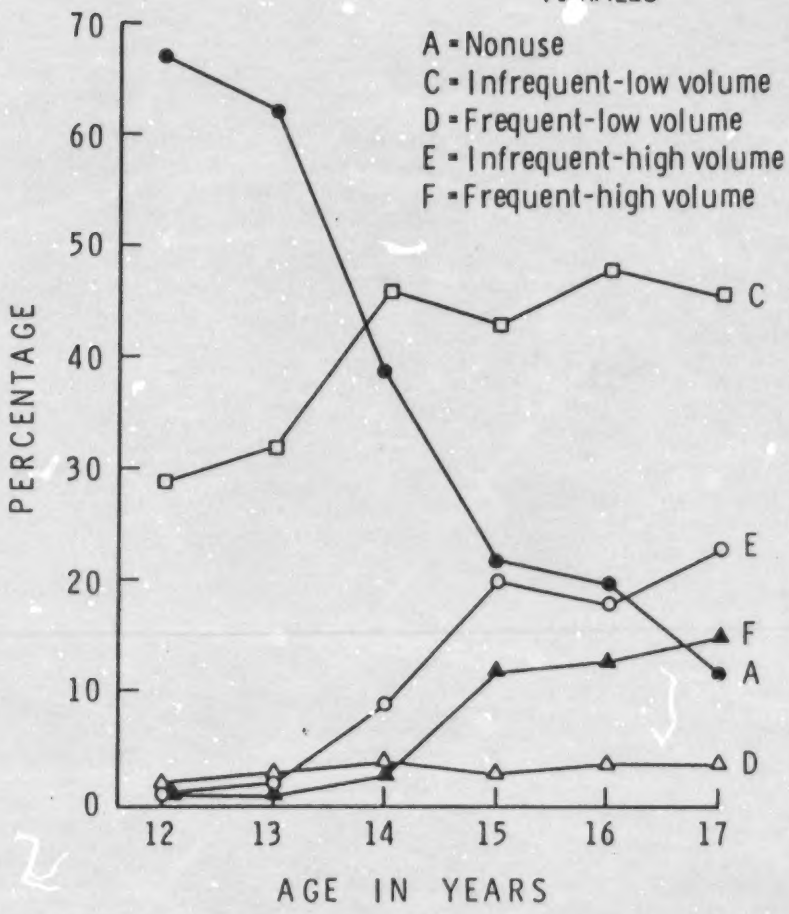
Note: For each measure, values with the same superscript are not significantly different by Duncan Range Test.

Table 3
Percentage of Male and Female Students by One-Year Age Intervals Reporting Undersirable Social Consequences from Alcohol Use

Age	Sex M	F
12	6	4
13	16	10
14	23	21
15	28	26
16	33	30
17	39	33

McLaughlin 29





McLaughlin 28